

## Ray splitting billiards and Quantum Ergodicity

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I will state the notion of Quantum Ergodicity for the Laplace operator on manifolds and will explain the Shnirelman-Colin de Verdiere-Zelditch theorem that relates Quantum ergodicity to classical ergodicity. This notion has no obvious classical counterpart for quantum systems with transmissive boundary conditions. I will give some simple examples and show that the classical Egorov theorem does not hold. I will then explain how the problems encountered can be overcome and state a solution of the Quantum Ergodicity question for these type of systems that was obtained in collaboration with D. Jakobson and Y. Safarov.